WHAT IS CLAIMED IS:

1. A lithography system comprising:

a lithography patterning chamber;

a wafer exchange chamber coupled to said lithography patterning chamber; and

at least one alignment load-lock separated from said wafer exchange chamber by a second gate valve, said at least one alignment load-lock including an alignment stage that aligns a wafer.

2. The lithography system of claim 1, wherein said wafer exchange chamber is separated from said lithography patterning chamber by a first gate valve.

3. The lithography system of claim 1, wherein said alignment stage aligns said wafer during a pumpdown stage.

4. The lithography system of claim 1, wherein said at least one alignment load-lock is a bi-directional alignment load-lock separated from a track by a third gate valve.

5. The lithography system of claim 1, wherein said at least one alignment load-lock is a unidirectional alignment load-lock separated from a track by a third gate valve.

6. The lithography system of claim 3, wherein said at least one alignment load-lock comprises a plurality of alignment load-locks.

7. The lithography system of claim 1, wherein said at least one alignment load-lock comprises a first wall and a second wall diametrically opposite from said

first wall, wherein said first wall has an opening comprising a motion feedthrough seal that allows a column to move and prevents the necessity of a rotary seal.

8. The lithography system of claim 7, wherein said second wall has an opening comprising a motion feedthrough seal that allows a column to move and allows increased stability of the lithography system.

9. The lithography system of claim 6, wherein said plurality of alignment load-locks comprises uni-directional alignment load-locks.

10. The lithography system of claim 1, further comprising a spare chuck holding load-lock separated from said wafer exchange chamber by a third gate valve.

11. The lithography system of claim 1, further comprising an illumination source that emits light having an inspection wavelength, and a camera sensitive to said inspection wavelength.

12. The lithography system of claim 9, wherein said at least one alignment load-lock further comprises a load-lock roof transparent to said inspection wavelength.

13. The lithography system of claim 1, wherein said at least one alignment load-lock further comprises wafer supports for holding a wafer within said at least one alignment load lock.

14. The lithography system of claim 1, wherein said at least one alignment load-lock further comprises an alignment stage separated from an alignment sub-stage disposed outside of said at least one alignment load-lock by a column extending through a floor of the at least one alignment load-lock.

15. The lithography system of claim 14, wherein said alignment stage includes a plurality of stage engagement mechanisms for kinematically mounting a chuck.

16. The lithography system of claim 15, wherein said stage engagement mechanisms comprise vee-blocks.

17. The lithography system of claim 14, wherein said floor of the at least one alignment load-lock includes a motion feedthrough seal that allows said column to move relative to said floor while preventing gas flow into said at least one alignment load-lock.

18. The lithography system of claim 17, wherein said motion feedthrough seal comprises elements chosen from the following groups: bellows, elastomer seals, teflon seals, fernofluidic seals and magnetic couplings.

19. The lithography system of claim 1, further comprising at least one chuck.

20. The lithography system of claim 19, wherein said at least one chuck is an electrostatic chuck.

21. The lithography system of claim 19, wherein said at least one chuck is a vacuum chuck.

22. The lithography system of claim 19, wherein said at least one chuck comprises a plurality of chucks.

23. The lithography system of claim 19, wherein said at least one chuck includes a plurality of cut-outs such that said at least one chuck can be brought into contact with a wafer held by a plurality of wafer supports without contacting said plurality of wafer supports.

24. The lithography system of claim 19, wherein said at least one chuck includes a plurality of chuck engagement mechanisms on a lower surface for kinematically mounting said at least one chuck.

25. The lithography system of claim 24, wherein said chuck engagement mechanisms are hemispheres.

26. The lithography system of claim 1, wherein said lithography patterning chamber includes at least one exposure stage that holds a chuck with a wafer during lithography patterning.

27. The lithography system of claim 26, wherein said at least one exposure stage comprises a plurality of exposure stages.

28. A method of processing a wafer within a lithography system comprising:

(a) placing the wafer on supports within an alignment load-lock;

(b) aligning the wafer with respect to a chuck while the wafer supported within the alignment load-lock on the supports;

(c) securing the wafer to the chuck; and

(d) performing a pump-down to create a vacuum within the alignment load-lock.

29. The method of claim 28, wherein said step (d) is performed concurrently with at least one of said steps (b) and (c).

30. The method of claim 28, wherein said step (d) is performed concurrently with said step (b) and said step (c).

31. The method of claim 29, further comprising:

(e) transporting the chuck and wafer to a lithography patterning chamber;

(f) performing lithography patterning on the wafer;

(g) returning the wafer and chuck to the alignment load-lock;

(h) removing the chuck from the wafer; and

(i) venting the alignment load-lock.

32. The method of claim 31, wherein said steps (h) and (i) are performed concurrently.

33. A method of aligning a wafer within an alignment load-lock comprising:

(a) placing the wafer on supports within the alignment load-lock;

(b) observing the location and orientation of the wafer on the supports within the alignment load-lock;

(c) moving a chuck so as to align the wafer with respect to the chuck;

(d) placing the chuck in contact with the wafer; and

(e) securing the wafer to the chuck.

34. The method of claim 33, wherein said step (b) further comprises observing the location and orientation of the wafer on the supports within the alignment load-lock with a camera located outside of the alignment load-lock.

35. The method of claim 33, wherein said step (d) further comprises moving the chuck upwards until it lifts the wafer up off of the supports.

36. The method of claim 33, wherein the chuck is an electrostatic chuck, and said step (e) further comprises charging the electrostatic chuck.

37. A lithography system comprising:

a lithography patterning chamber;

a wafer exchange chamber adjacent to said lithography patterning chamber;

at least one alignment chucking station adjacent to said wafer exchange chamber; and

a plurality of chucks;

wherein wafers are moved to and from the lithography patterning chamber while being affixed to respective ones of said plurality of chucks.